Remarks

Reconsideration of this Application is respectfully requested. Claims 1-25 are pending in the application, with claims 1, 12, and 21 being the independent claims.

Based on the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Rejections under 35 U.S.C. § 112

Claims 22-25 are rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement. In particular, the Examiner alleges that claims 22-25 contain subject matter directed to "a watermark comprising a different respective index number and a different respective portion of the stream of watermark [bits]," Office Action, paragraph 5, which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor(s) had possession of the claimed invention at the time the application was filed. For the reasons provided below, Applicants respectfully traverse.

Applicants refer the Examiner to paragraphs [035]-[062] of Applicants' specification which generally describe several watermarking embodiments of the claimed invention. In particular, the Examiner is referred to paragraphs [042]-[044] of Applicants' specification, which expressly describe embodiments covering the features recited in claims 22-25. For example, paragraph [043] explicitly indicates that watermarks (meaning the respective portions of watermark bits) may differ from one packet to another. The same paragraph further describes an embodiment in which the index numbers associated with packets are different from one another. Thus, the

written description requirement is fully met with respect to claims 22-25. Applicants

respectfully request that the Examiner reconsiders and withdraws the rejection under

35 U.S.C. § 112 of claims 22-25.

Rejections under 35 U.S.C. § 103

Claims 1-7, 10-17, and 20-25 are rejected under 35 U.S.C. § 103(a) as being

unpatentable over U.S. Patent Application Publication No. 2003/0200439 to

Moskowitz in view of U.S. Patent 6,330,672 to Shur. Applicants respectfully

traverse.

Independent claim 1 recites, among other features, "generating **a plurality of**

watermarks, each of the plurality of watermarks comprising **a respective index**

number and a respective portion of the stream of watermark bits." (Emphasis added).

In rejecting claim 1, the Examiner concedes that Moskowitz only teaches a

single watermark to be inserted in the header of every outgoing packet, but does not

"teach each [packet] header receiving a respective different watermark." Office

Action, page 6, line 19 - page 7, line 3. However, the Examiner alleges that this

feature is obvious in view of Shur, which according to the Examiner teaches "putting

different portions of the watermark string in different parts of the data, and defining

an index, which identifies which part of the data stream is affected by the addition or

injection of the watermark stream." Office Action, page 7, lines 9-12.

In the Reply to Office Action, filed September 12, 2008, Applicants asserted

that Shur only teaches inserting **a single watermark** into an information signal.

Applicants further asserted that nowhere does Shur teach or suggest generating **more**

than a single watermark to be used in the information signal.

In the Response to Applicants' Arguments, the Examiner fails to respond to the above reiterated argument by Applicants, merely stating that "the rejection of claim 1 clearly shows how Shur teaches generation of plurality of watermarks." Office Action, page 3, lines 7-8. However, the Examiner does not offer any evidence or reference in Shur that rebuts Applicants' assertions. "Where the applicant traverses any rejection, the examiner should, if he or she repeats the rejection, take note of applicant's argument and answer the substance of it." M.P.E.P. § 707.07(f).

Furthermore, in the Reply to Office Action, filed September 12, 2008, Applicants asserted that neither Moskowitz nor Shur teaches or suggests that each of the plurality of watermarks "comprises a **respective index number**," as recited in claim 1. (Emphasis added). In particular, Applicants argued that since both Moskowitz and Shur use only a single watermark, **an index number to index the watermark** within the stream of packets is not needed and is thus not used in either Moskowitz or Shur.

Again, in the Response to Applicants' Arguments, the Examiner fails to respond to Applicants' arguments, simply noting that "the rejection shows how the combination teaches generation of indices associated with watermarks." Office Action, page 3, lines 10-12. However, neither in the Response to Applicants' Arguments nor in the rejection of claim 1 does the Examiner provide evidence or reference in Moskowitz or Shur that shows that **each generated watermark comprises a respective index number.** In fact, the Examiner, as noted above, conceded that Moskowitz does not teach this feature. Further, all that Shur teaches is that a single watermark is distributedly inserted into an information signal at indexed locations of the information signal. *See e.g.,* Shur, column 6, lines 38-42. The

indexed locations serve to indicate where the single watermark is to be injected into the information signal. *See e.g.*, Shur, column 6, lines 46-51. However, the "indices," as referred to by the Examiner, are not inserted with the watermark into the information signal, nor are part of the watermark, as recited in claim 1. In other words, Shur does not teach or suggest that **a respective index number** is inserted with each portion of the watermark in the information signal, notwithstanding the fact that multiple portions of a single watermark are not equivalent to a plurality of watermarks, as recited in claim 1.

For at least reasons above, Moskowitz and Shur, alone or in combination, do not teach or suggest "generating **a plurality of watermarks**, each of the plurality of watermarks comprising **a respective index number** and a respective portion of the stream of watermark bits," as recited in claim 1. (Emphasis added).

Independent claim 1 further recites, among other features, "inserting the plurality of watermarks into **respective headers of a plurality of outgoing packets**."

In rejecting this feature of claim 1, the Examiner relies on Shur to suggest that Shur's method of inserting a single watermark into an information signal is equivalent to inserting distinct watermarks into respective outgoing packets. *See*, Office Action, page 7, lines 4-12.

In the Reply to Office Action, filed September 12, 2008, Applicants asserted that Shur does not teach or suggest inserting **a plurality of watermarks**, since Shur only teaches inserting a single watermark. Further, Applicants highlighted the fact that Shur's method is not concerned with watermarking a **packetized data stream** but rather an **information signal prior to packetization**. This is significant because if

Shur's method applies **prior** to packetization, then Shur's watermarking method is not pertinent to the problem of packet watermarking of the claimed invention. In support, Applicants relied on FIGS. 1(a) and 1(b) of Shur to show that Shur's method does not operate on a packetized stream because Shur's process consists of steps that occur prior to packetization in a transmission chain. For example, Applicants noted that Shur's process, illustrated in FIG. 1(b), includes low-pass filtering, analog-to-digital conversion, and lastly entropy encoding, all of which are steps that occur prior to packetization in a transmission chain.

In the Response to Applicants' Arguments, the Examiner responds by noting that "nothing in Fig. 1(a) or 1(b) suggest that Shur's method cannot be applied to packetized streams." Applicants disagree because Shur's method clearly operates on **information content** (e.g., audio, video, etc.) in order to inject the watermark at locations where content may be removed without affecting quality. Otherwise, if, for the sake of argument, Shur's method operated on a packetized stream (which necessarily includes control as well as content bits) as suggested by the Examiner, then Shur's method would also operate on control information (e.g., header fields), potentially removing essential control bits from the packet. Clearly, this is not a sensible application of Shur's method. Therefore, Applicants reassert that Shur's method is not concerned with watermarking a **stream of packets**. Further, since Shur operates on **information content** rather than on a **stream of packets**, combining Moskowitz and Shur would entail modifying the watermarking in Moskowitz to operate on **information content**. However, such modification would "change the principle of operation" of Moskowitz, and thus Moskowitz and Shur "are not sufficient to render the claims *prima facie* obvious." *See* M.P.E.P. 2143.02(VI).

With regard to the same Applicants' argument, the Examiner further provides that "Shur col.3 lines 61 to 66 suggests that information may be watermarked at the time of distribution via the Internet." Office Action, page 4, lines 8-9. In response, Applicants' assert that nothing in that statement by Shur suggests that the watermarking referred to would occur prior to packetization.

Further, assuming, *arguendo*, that Moskowitz and Shur can be combined as suggested by the Examiner, the combination would still not result in "inserting the plurality of watermarks into **respective headers** of a plurality of outgoing packets," as recited in claim 1. Indeed, since Shur operates by distributedly injecting a watermark into an information signal, the resulting digital bit stream after watermark injection will contain both content bits and watermark bits. Therefore, when the digital bit stream is subsequently packetized, the watermark bits, like the content bits, will be contained in the **payload portions** of the generated packets.

To further illustrate the above described deficiency of Shur, Applicants herein submit an appendix which depicts an example signal watermarking followed by packetization according to Shur. In particular, the appendix illustrates the watermarking of an example sound wave, followed by packetization of the resulting watermarked digital stream. The example illustrated in the appendix was created according to the teachings of Shur, as described, for example, in FIG. 2 and col. 7, line 56- col. 8, line 24 of Shur. As shown in the appendix, watermarking according to Shur works by replacing content bits in the information signal with watermark bits where content removal would not affect perceived quality. For example, in the sound wave illustrated in the appendix, content may not be removed for frequencies higher than approximately 8 KHz. As a result, the portion of the watermarked bit stream and

the packets that correspond to information content in said frequency range will not contain any watermark bits. For frequencies lower than approximately 8 KHz, content may be removed. However, even when content is removed and replaced with watermark bits, during packetization, the watermark bits will be treated identically to content bits and will also be placed in the payload portions of packets generated from the watermarked bit stream.

Accordingly, Shur's method of inserting a single watermark in an information signal is not equivalent to nor makes obvious in view of Moskowitz the above recited feature of claim 1, which includes "inserting the plurality of watermarks into **respective headers** of a plurality of outgoing packets."

For at least the reasons above, claim 1 is patentable over Moskowitz and Shur. Reconsideration and withdrawal of the rejection of claim 1 and of claims 2-11 that depend therefrom is respectfully requested.

Independent claims 12 and 21 recites similar features as discussed above with respect to claim 1. For at least the reasons provided above with respect to claim 1, claims 12 and 21 are patentable over Moskowitz and Shur. Reconsideration and withdrawal of the rejection of claims 12-17 and 20-21 is respectfully requested.

Claims 8, 9, 18, and 19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Moskowitz in view of Shur, and further in view of Examiner Official Notice.

Claims 8, 9, 18, and 19 depend from one of independent claims 1 and 12. Claims 1 and 12 are distinguished above over Moskowitz and Shur. The Examiner's

Official Notice does not overcome the deficiencies of Moskowitz and Shur as discussed above. Accordingly, claims 8, 9, 18, and 19 are patentable over Moskowitz, Shur, and the Examiner's Official Notice.

Furthermore, Applicants herein traverse the Official Notice taken by the Examiner because the Official Notice is "unsupported by documentary evidence" and the "technical line of reasoning underlying" the Official Notice is neither clear nor unmistakable. "The applicant should be presented with the explicit basis on which the examiner regards the matter as subject to official notice and be allowed to challenge the assertion in the next reply after the Office action in which the common knowledge statement was made." *See* M.P.E.P. 2144.03(B). The Examiner has failed to provide Applicant with such explicit basis in the Office Action.
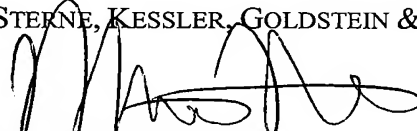
Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

ERLINGSSON *et al.*
Appl. No. 10/627,270
Atty. Docket: 2525.0750001

Respectfully submitted,
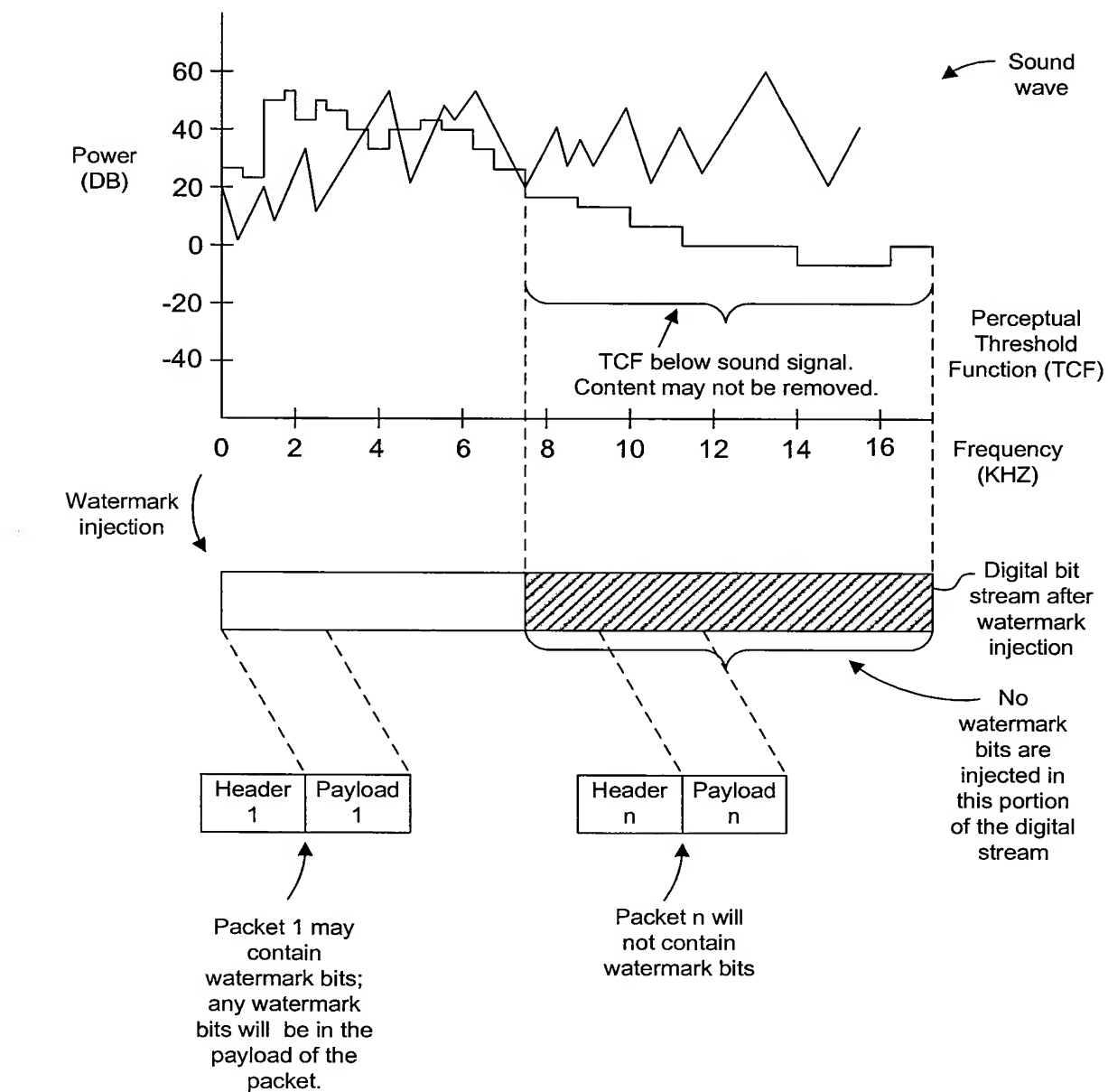
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Example Signal Watermarking Followed by Packetization According to Shur

Power
(DB)

60
40
20
0
-20
-40

0 2 4 6 8 10 12 14 16

Sound wave

TCF below sound signal.
Content may not be removed.

Perceptual
Threshold
Function (TCF)

Frequency
(KHZ)

Watermark
injection

Digital bit
stream after
watermark
injection

No
watermark
bits are
injected in
this portion
of the digital
stream

Header 1	Payload 1

Header n	Payload n

Packet 1 may
contain
watermark bits;
any watermark
bits will be in the
payload of the
packet.

Packet n will
not contain
watermark bits